

EXHIBIT F

UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF CALIFORNIA
SAN FRANCISCO DIVISION

ORACLE AMERICA, INC.

Plaintiff,

v.

Case No. 3:10-cv-03561-WHA

GOOGLE, INC.

Defendant.

EXPERT REPORT OF DR. GREGORY K. LEONARD

Revised October 24, 2011

**HIGHLY CONFIDENTIAL
SUBJECT TO PROTECTIVE ORDER**

- The survey does not account for the current brand owned by the survey respondent and the respondent's satisfaction with that brand. It is quite possible that brand loyalty (or unhappiness) affects the importance of the attributes to that respondent. Similarly, no information was collected on whether the respondent is a heavy or light user or uses any of the features mentioned, or what price the respondent actually paid for their own phone.

C. The Stated Preferences of the Respondents to the Shugan Survey Are Inconsistent With Economic Preferences

Dr. Shugan did not use any of the proposed methods to address potential hypothetical bias in his survey. Given the susceptibility of stated preference surveys to hypothetical bias that would render the results unreliable, it is important to examine the survey results for signs that the stated preferences are inconsistent with the economic preferences that would be associated with actual purchasing behavior.

Dr. Shugan conducts tests where he omits one choice task (the “holdout” task) from the estimation of a respondent’s stated preferences, then uses the estimated stated preferences to predict the respondent’s choice in the “holdout” task. This is a weak test because it has relatively low power to detect hypothetical bias. The reason is that it is a “within-respondent” test, depending on inconsistencies within a respondent’s own answers to detect a problem, and thus it will be confounded by a respondent’s desire to be internally consistent.³⁴⁶ For example, a respondent that has overstated his or her preferences for a product in one choice task will continue to do so in other choice tasks. Thus, the overstated preferences reflected in the respondent’s answers to the choice tasks other than the “left out” choice task may predict quite well the respondent’s answer for the “left out” choice task even though there is substantial hypothetical bias present.

³⁴⁶ See, e.g., Olaf Johansson-Stenman and Henrik Svensäter, “Measuring Hypothetical Bias in Choice Experiments: The Importance of Cognitive Consistency,” *The B.E. Journal of Economic Analysis & Policy*, 2008.

Accordingly, I have examined other aspects of the Shugan survey results to determine whether the stated preferences expressed by the survey respondents in the hypothetical and artificial survey setting used by Dr. Shugan are consistent with economic preferences associated with actual purchasing behavior.³⁴⁷ I find that there are important signs of hypothetical bias, and thus there is no economic basis to use the Shugan survey results to calculate “market share,” “willingness to pay,” or any other concept based on the economic theory of consumer demand.

First, a substantial number of the survey respondents exhibited stated preferences (demand) for handsets with *higher* prices, all else equal—an outcome contrary to the basic economic principle that demand curves slope downward, i.e., decrease with price. An examination of the individual part-worths for the survey respondents shows that, according to their stated preferences, 24% valued a handset priced at \$200 *more* than an otherwise equivalent handset priced at \$100, see Exhibit 7. This makes no economic sense, as demand should be lower at a higher price. Similarly, according to their stated preferences, 7% of the respondents valued a handset priced at \$300 more than an otherwise equivalent handset priced at \$200, see Exhibit 7. Again, this makes no economic sense.

Second, in the aggregate over the population, market demand for Android handsets (i.e., the market share function for Android handsets) *increases* as price increases from \$100 to \$200. Again, this is contrary to basic economic principles. While market demand decreases as price increases from \$200 to \$300, the size of the decrease is implausibly small. For example, the implied elasticity of demand for Android handsets is only -0.29, which is well below any

³⁴⁷ At his deposition, Dr. Shugan acknowledged that “we didn’t go through the additional task of validating the conjoint analysis on the real-world purchases” (Shugan Dep., p. 87).

reasonable level, see Exhibit 8. Implausibly low elasticity of demand is a sign of hypothetical bias where respondents are not taking seriously the prices they hypothetically would have to pay.

Third, with respect to speed, 26% of the respondents valued a handset with a speed of 0.2 seconds less than an otherwise equivalent handset with a speed of 2 seconds, see Exhibit 7. This result is inconsistent with the contentions of Oracle's experts that speed is important.

In all, 49% of respondents valued higher priced handsets more than otherwise equivalent lower priced handsets, or valued slower handsets more than otherwise equivalent faster handsets, or both, see Exhibit 7. The substantial incidence of inconsistent responses demonstrates the unreliability of the survey results.

There are several potential explanations for these results. First, some respondents may not have approached the hypothetical choice exercise in the same way they would if they were actually purchasing a phone. For example, some respondents may have paid less attention to price than they would in a situation where real money was on the table. This would be consistent with the findings in the literature. Second, while performing the choice tasks, some respondents may have ascribed attribute to the handsets in the choice set in addition to those described by the survey instrument. For example, some respondents may have assumed that a handset priced at \$200 must have more features than a handset priced at \$100, even though the survey instrument described the two handsets as having the same levels of features. Under either of these explanations, the survey results could not be used reliably to measure true economic preferences, market shares, or willingness to pay.